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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,035	02/15/2001	Katsuhide Manabe	PM 276665 F99-156-USDIV	6867
21254	7590	09/07/2004	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			NGUYEN, THANH T	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/783,035

Applicant(s)

MANABE ET AL.

Examiner

Thanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18, 19 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) 18 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/28/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 10/28/03 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22-26 are stand rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (U.S. Patent No. 5,578,839) as previously applied.

Referring to figures 1-10, Nakamura et al. teaches a method for producing a light-emitting semiconductor device of a group III nitride compound, comprising:

Forming an N-layer of an N-type conduction (16, see figure 1, col. 5, lines 14-24), the N-layer comprising gallium nitride (16, It will be Gallium nitride when $y=1$),

Forming an emission layer of group III nitride compound semiconductor (18, see fig. 1, col. 5, lines 7-13) satisfying the formula, $Al_{x1}Ga_{y1}In_{1-x1-y1}N$, where $0 \leq x1 \leq 1$, $0 \leq y1 \leq 1$, $0 \leq x1+y1 \leq 1$, on the N-layer (18), Noted that when $x1=0$ then the formula will be $Ga_{y1}In_{1-y1}N$ which will be the same as formula of layer 18.

Forming a P-layer of P-type conduction (20, see col. 5, lines 25-32), on the emission layer (18), said p-layer comprising aluminum gallium nitride satisfying the formula $Al_{x2}Ga_{1-x2}N$,

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where $0 < x_2 < 1$. Noted that when $x_2 = 0.5$ then the formula will be $Al_{0.5}Ga_{0.5}N$ which will be the same as formula of layer 20.

Forming a contact layer of P-type conduction (34), on the P-layer, the contact layer comprising gallium nitride (see claim 19, col. 11, lines 44-47).

Doping Si into the N-layer and Mg into the P-layer (see col. 10, lines 38-67), so that a potential barrier of a valence band of the N-layer is lower than a potential barrier of a conduction band of the P-layer during conduction. It is held, absent evidence to the contrary that doping the N-type and P-type of dopant into the layer would facilitate the potential barrier of a valence band of the N-layer is lower than a potential barrier of a conduction band of the P-layer during conduction. See In re Best, 195 USPQ 428 (CCPA 1977) and In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Regarding to claim 23, the emission layer is doped with acceptor and donor impurities (18, see fig. 1, col. 5, lines 7-13).

Regarding to claim 24, the contact layer of P-type conductivity (34) is formed between the P-type layer (20) and an electrode (26, see fig. 11).

Regarding to claim 25, forming an electrode (26) contacting the contact layer (34, see fig. 11).

Response to Arguments

Applicant's arguments filed 10/28/03 have been fully considered but they are not persuasive.

The 112 rejection has been withdrawn.

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Applicant contends that Nakamura doesn't disclose forming a layer made of n-GaN, an emission layer made of AlGaInN and a layer made of p-AlGaN. In response to applicant argument that In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., emission layer made of AlGaInN and a layer made of p-AlGaN) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant claimed only forming an emission layer of group III nitride compound semiconductor satisfying the formula, $Al_{x1}Ga_{y1}In_{1-x1-y1}N$, where $0 \leq x1 \leq 1$, $0 \leq y1 \leq 1$, $0 \leq x1+y1 \leq 1$, on the N-layer, Forming a P-layer of P-type conduction, on the emission layer, said p-layer comprising aluminum gallium nitride satisfying the formula $Al_{x2}Ga_{1-x2}N$, where $0 < x2 < 1$. Therefore examiner reject the claims as: forming an emission layer of group III nitride compound semiconductor (18, see fig. 1, col. 5, lines 7-13) satisfying the formula, $Al_{x1}Ga_{y1}In_{1-x1-y1}N$, where $0 \leq x1 \leq 1$, $0 \leq y1 \leq 1$, $0 \leq x1+y1 \leq 1$, on the N-layer (18), Noted that when $x1=0$ then the formula will be $Ga_{y1}In_{1-y1}N$ which will be the same as formula of layer 18. Forming a P-layer of P-type conduction (20, see col. 5, lines 25-32), on the emission layer (18), said p-layer comprising aluminum gallium nitride satisfying the formula $Al_{x2}Ga_{1-x2}N$, where $0 < x2 < 1$. Noted that when $x2=0.5$ then the formula will be $Al_{0.5}Ga_{0.5}N$ which will be the same as formula of layer 20.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on (571) 272-1702. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956 (See **MPEP 203.08**).


THANH NGUYEN
PRIMARY EXAMINER